III.B.3.N.B. INTERMITTENTLY FLOODED EXTREMELY XEROMORPHIC DECIDUOUS SUBDESERT SHRUBLAND

III.B.3.N.b.3. SARCOBATUS VERMICULATUS INTERMITTENTLY FLOODED SHRUBLAND ALLIANCE
Black Greasewood Intermittently Flooded Shrubland Alliance

Alliance Identifier: A.1046
Sarcobatus vermiculatus / Atriplex gardneri Shrubland
Black Greasewood / Gardner's Saltbush Shrubland
Greasewood / Gardner's Saltbush Shrubland

ELEMENT CONCEPT

GLOBAL SUMMARY: This "badlands" association is reported from Montana, Wyoming and Utah. Stands occur on all aspects of moderately steep to steep eroded slopes or on toeslopes composed of "badland" sediments. Substrates are fine-textured, alkaline and saline, have low permeability, and are composed of acid shale, bentonite, or some other highly erodible material. Bare ground and gravel make of the majority (80%) of the ground surface. The vegetation is characterized by a sparse to moderately dense (20-40% cover) woody layer codominated by the short shrub *Sarcobatus vermiculatus* and the dwarf-shrub *Atriplex gardneri*. Other shrubs and dwarf-shrubs include scattered *Artemisia tridentata, Picrothamnus desertorum (= Artemisia spinescens), Atriplex confertifolia, Ericameria nauseosa, Gutierrezia sarothrae, Suaeda calceoliformis*, and *Suaeda moquinii*. The graminoid layer, if present, is sparse and may include *Poa secunda, Achnatherum hymenoides, Elymus elymoides*, and the introduced annual *Bromus tectorum*. The forb layer is highly variable in cover and composition because much of it is annual, such as *Endolepis dioica (= Atriplex dioica)* and *Lappula squarrosa*. Common perennial forbs include *Iva axillaris, Machaeranthera canescens*, and *Allium textile*.

ENVIRONMENTAL DESCRIPTION

USFWS WETLAND SYSTEM: PALUSTRINE

Ouray National Wildlife Refuge Environment: This type becomes established on sediments washed from badlands bluffs, ridges and hills into the floodplain of the Green River. The most significant of these outwash deposits occurs west of Leota Bottom, where Greasewood Shrubland forms a large ecotone with Gardner Saltbush Dwarf-shrubland. A similar, but smaller area is present above the basin in Wyasket Bottom. The soils associated with this ecotone are alkaline and consist of fine-grained silty clay. Wildlife use is limited to pronghorn, deer, and small mammals.

Global Environment: This "badlands" association is reported from Montana, Wyoming and Utah. Stands occur on all aspects of moderately steep to steep eroded slopes or on toeslopes composed of "badland" sediments. Substrates are fine-textured, alkaline and saline, have low permeability, and are composed of acid shale, bentonite, or some other highly erodible material. Bare ground and gravel make of the majority (80%) of the ground surface.

VEGETATION DESCRIPTION

Ouray National Wildlife Refuge Vegetation: This is a sparse vegetation type, with total foliar cover of 20% or less. Greasewood shrubs can exceed 0.5 m in height, but *Atriplex gardneri, Gutierrezia sarothrae,* and *Artemisia spinescens* only rarely exceed 25 cm in height. The shrubs are widely spaced, with only a few bunches of *Oryzpsis hymenoides* between (<5% foliar cover). Both *Elymus elymoides* and *Bromus tectorum* grow under the dwarf shrubs in the small amount of litter trapped between branches. Mosses, lichens, and cryptogamic soils can all be observed within this type. Sheet erosion by water and wind erosion are common to this type; the sheet erosion is the mechanism by which the sediments are washed into the floodplain.

Global Vegetation: The vegetation in this association is characterized by a sparse to moderately dense (20-40% cover) woody layer codominated by the short shrub *Sarcobatus vermiculatus* and the dwarf-shrub *Atriplex gardneri*. Other shrubs and dwarf-shrubs include scattered *Artemisia tridentata, Picrothamnus desertorum (= Artemisia spinescens), Atriplex confertifolia, Ericameria nauseosa, Gutierrezia sarothrae, Suaeda calceoliformis*, and *Suaeda moquinii*. The graminoid layer, if present, is sparse and may include *Poa secunda, Achnatherum hymenoides, Elymus elymoides*, and the introduced annual *Bromus tectorum*. The forb layer is highly variable in cover and composition because much of it is annual, such as *Endolepis dioica (= Atriplex dioica)* and *Lappula squarrosa*. Common perennial forbs include *Iva axillaris, Machaeranthera canescens*, and *Allium textile*.

Dynamics: Both *Sarcobatus vermiculatus* and *Atriplex gardneri*, like many facultative halophytes, are tolerant of alkaline and saline soil conditions that allow the species to occur in sites with less interspecific competition (Ungar et al. 1969, Bransen et al. 1976).

MOST ABUNDANT SPECIES

Ouray National Wildlife Refuge

Stratum	**Species**
SHORT SHRUB	*Sarcobatus vermiculatus, Tetradymia spinosa*
DWARF SHRUB	*Atriplex gardneri, Gutierrezia sarothrae, Artemisia spinescens, Suaeda depressa*
HERBACEOUS	*Achnatherum hymenoides, Elymus elymoides*

Global

Stratum	**Species**
SHORT SHRUB	*Sarcobatus vermiculatus*
DWARF SHRUB	*Atriplex gardneri*
DWARF SHRUB	*Gutierrezia sarothrae*

CHARACTERISTIC SPECIES

Ouray National Wildlife Refuge

Species

Sarcobatus vermiculatus, Atriplex gardneri, Gutierrezia sarothrae, Achnatherum hymenoides

Global

Species

Atriplex gardneri, Sarcobatus vermiculatus

OTHER NOTEWORTHY SPECIES

Ouray National Wildlife Refuge

Stratum	**Species**
N/A	

Global

Stratum	**Species**
N/A	

GLOBAL SIMILAR ASSOCIATIONS:

Sarcobatus vermiculatus / Pseudoroegneria spicata Shrubland (CEGL001367)
Sarcobatus vermiculatus / Artemisia tridentata Shrubland (CEGL001359)
Atriplex gardneri Dwarf-shrubland (CEGL001438)
Atriplex gardneri / Artemisia tridentata Dwarf-shrubland (CEGL001440)

SYNONYMY:

Sarcobatus vermiculatus / Atriplex nuttallii community type (DeVelice et al. 1991)
Sarcobatus vermiculatus / Atriplex nuttallii community type (DeVelice et al. 1995)
Sarcobatus vermiculatus / Atriplex nuttallii community type (DeVelice and Lesica 1993)

CLASSIFICATION COMMENTS

Ouray National Wildlife Refuge: Understory species vary across the Refuge, depending on the location of the particular greasewood stand. Rabbitbrush is common on the edge of the existing floodplain, but a long abandoned floodplain channel (actually crossed by SH 88) supports a variety of drier shrubs including snakeweed, green sage, and spiny sagebrush. In Brennan Flats, big sagebrush is associated with greasewood. A greasewood stand on the edge of Wyasket Bottom contains only foxtail barley in the understory. The sparse greasewood stand in Johnson Bottom is difficult to classify, since foliar cover values are equal for greasewood and prickly-pear cactus. For mapping purposes, this stand may require application of a special attribute code.

Global Comments: This type should be compared to *Sarcobatus vermiculatus / Pseudoroegneria spicata* Shrubland (CEGL001367). The two types may be synonymous since they occupy the same badlands slope habitat.

ELEMENT DISTRIBUTION

Ouray National Wildlife Refuge Range: The *Sarcobatus vermiculatus - Atriplex gardneri* Shrubland type is best developed above the basin in Wyasket Bottom and on the large erosion fan west of Leota Bottom.

Global Range: This shrubland association occurs in eastern Montana, Big Horn Basin in north-central Wyoming, and northeastern Utah.

Nations: US
States/Provinces: MT UT WY
TNC Ecoregions: 10:C, 11:C, 26:C
USFS Ecoregions: 331D:C?, 331G:C?, 341C:CC, 342A:CC, 342F:CC, 342G:CC, M331B:??
Federal Lands: USFWS (Ouray)

ELEMENT SOURCES

Identifier: CEGL001360 **Confidence:** 1 **Conservation Rank:** G4?
REFERENCES: Branson et al. 1976, DeVelice and Lesica 1993, DeVelice et al. 1991, DeVelice et al. 1995, Hamner 1964, Medicine Bow Mine Application n.d., Sweetwater Uranium Project 1978, Ungar et al. 1969, Von Loh 2000.